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Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

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**In the Matter of**

**Amendment of Section 2.106 of the  
Commission's Rules to Allocate  
Spectrum at 2 GHz for Use  
by the Mobile-Satellite Service**

**ET Docket No. 95-18**

**REPLY COMMENTS OF THE BOEING COMPANY**

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March 5, 1999

## Table of Contents

I.	Each MSS Licensee, Including Those That Plan to Construct Systems They Claim Will be Able to Coexist with 2 GHz Incumbents, Should Bear Financial Responsibility for the Costs of Relocating 2 GHz Incumbents in Proportion to the Amount of Spectrum in the 1990-2025 MHz Band for Which it is Licensed .....	2
II.	Relocation Costs Should be Shared Among All MSS Licensees on the Basis of a Cost Sharing Formula Similar to That Adopted in the <i>Microwave Relocation Cost-Sharing</i> Proceeding, Whereby the First Entrant Pays Relocation Expenses and Obtains Reimbursement Rights From Subsequent Entrants .....	8
III.	The Commission Must Establish a General Framework that Permits MSS Operators to Negotiate the Relocation of 2 GHz Incumbents .....	12

## Summary

Boeing continues to support the application of the Commission's *Emerging Technologies* policies, as modified in the *Microwave Relocation Cost-Sharing* proceeding, to the current proceeding. Specifically, since the 2 GHz band is being cleared for the benefit of the entire 2 GHz MSS community, Boeing supports requiring all Mobile Satellite Services ("MSS") operators to share the costs of relocating 2 GHz incumbents in proportion to the amount of spectrum in the 1990-2025 MHz band that they are licensed. Boeing also believes that relocation costs should be shared among all MSS licensees on the basis of a cost sharing formula similar to that adopted in the *Microwave Relocation Cost-Sharing* proceeding, whereby the first entrant pays relocation expenses and obtains reimbursement rights from subsequent entrants at the time each subsequent entrant commences commercial operation. Finally, Boeing supports the phased transitional approach to relocating 2 GHz incumbents that was first advocated by the MSS Coalition and reiterated in the Comments of the ICO USA Services Group. In order to implement this transitional approach, Boeing believes that the MSS and Broadcast Auxiliary Service ("BAS") communities should be encouraged to collectively negotiate. Because of the limited information about BAS operations that is available to the Commission and to the potential MSS operators, Boeing believes that collective negotiations between the parties is the best way to achieve an efficient and equitable clearing of incumbents from the 2 GHz band.

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**ET Docket No. 95-18**

**REPLY COMMENTS OF THE BOEING COMPANY**

The Boeing Company ("Boeing"), by its attorneys, hereby submits the following reply to the comments filed in response to the *Third Notice of Proposed Rule Making* in the above-captioned proceeding.<sup>1</sup> In general, Boeing continues to support the application of the Commission's *Emerging Technologies* policies, as modified in the *Microwave Relocation Cost-Sharing* proceeding, to the current proceeding.<sup>2</sup> Specifically, since the 2 GHz band is being cleared for the benefit of the entire 2 GHz MSS community, Boeing supports requiring all Mobile Satellite Services ("MSS") operators to share the costs of relocating 2 GHz incumbents in proportion to the amount of spectrum in the 1990-2025 MHz band that they are licensed. Boeing also believes that relocation costs should be shared among all MSS licensees on the basis of a cost sharing formula similar to that adopted in the *Microwave Relocation Cost-Sharing*

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<sup>1</sup> *Memorandum Opinion and Order and Third Notice of Proposed Rule Making and Order*, ET Docket No. 95-18, 1998 FCC LEXIS 6026 (Released November 25, 1998) ("*Memorandum Opinion and Order and Notice*").

<sup>2</sup> See *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies* ("*Emerging Technologies*"), ET Docket No. 92-9, *First Report and Order and Third Notice of Proposed Rule Making*, 7 FCC Rcd 6886 (1992); *Second Report and Order*, 8 FCC Rcd 6495 (1993); *Third Report and Order and Memorandum Opinion and Order*, 8 FCC Rcd 6589 (1993); *Memorandum Opinion and Order*, 9 FCC Rcd 1943 (1994); *Second Memorandum Opinion and Order*, 9 FCC Rcd 7797 (1994); *Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation* ("*Microwave Relocation Cost-Sharing*"), WT

proceeding, whereby the first entrant pays relocation expenses and obtains reimbursement rights from subsequent entrants at the time each subsequent entrant commences commercial operation. Finally, Boeing supports the phased transitional approach to relocating 2 GHz incumbents that was first advocated by the MSS Coalition and reiterated in the Comments of the ICO USA Services Group (“IUSG”). In order to implement this transitional approach, Boeing believes that the MSS and Broadcast Auxiliary Service (“BAS”) communities should be encouraged to collectively negotiate. Because of the limited information about BAS operations that is available to the Commission and to the potential MSS operators, Boeing believes that collective negotiations between the parties is the best way to achieve an efficient and equitable clearing of incumbents from the 2 GHz band.

**I. Each MSS Licensee, Including Those That Plan to Construct Systems They Claim Will be Able to Coexist with 2 GHz Incumbents, Should Bear Financial Responsibility for the Costs of Relocating 2 GHz Incumbents in Proportion to the Amount of Spectrum in the 1990-2025 MHz Band for Which it is Licensed.**

As stated in its Comments, Boeing urges the Commission to avoid the competitive inequity that could result from adopting a policy based on the possibility that clearing some portions of the 2 GHz band may cost significantly more than clearing other portions of the band because the band is not consistently encumbered.<sup>3</sup> Commission adoption of a MSS spectrum sharing policy that includes band segmentation where MSS operators are only responsible for the costs of clearing the specific band that each is assigned could result in an inequitable distribution of relocation costs between 2 GHz MSS operators. This would result in an unjustified windfall to the MSS operators that are authorized to operate in the least encumbered spectrum. To the

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Docket No. 95-196, *First Report and Order and Further Notice of Proposed Rule Making*, 11 FCC Rcd 8825 (1996); *Second Report and Order*, 12 FCC Rcd 2705 (1997).

<sup>3</sup> Comments of the Boeing Company (“Boeing Comments”) at 4.

extent that the initial MSS operator would be able to select or influence the assignment of the spectrum in which it would operate, the remaining MSS operators are placed at a competitive disadvantage. It is fundamentally unfair for subsequent MSS operators to be responsible for the costs of clearing the remaining — more heavily encumbered — portion of the band simply because they entered the market at a later time. Such a situation would not only give the initial entrant the competitive benefit of launching its services first, but would require the subsequent entrants to subsidize that benefit. This is directly counter to the Commission's *Microwave Relocation Cost-Sharing* policies because, as noted by the Commission, the benefit of being first in the marketplace far outweighs the burden of bearing the costs of relocation.<sup>4</sup>

Moreover, since the clearing of incumbents from the 2 GHz band will benefit the entire MSS community, all MSS licensees — including those who claim that their systems will not interfere with 2 GHz incumbents — must contribute to the costs of relocating the incumbents. Exempting some MSS operators from having to pay for relocation would not reduce the total relocation costs that MSS operators have to pay. Instead, permitting some MSS operators to avoid the responsibility of paying their fair share of relocation would only shift the costs of relocation to the other MSS operators. While it may not be necessary to relocate all 2 GHz incumbents initially, Boeing believes that the 2 GHz band will eventually have to be cleared of the vast majority of the incumbent licensees in order for MSS to develop fully. Thus, while proposals that reduce or defer the relocation of 2 GHz incumbents, including the transitional plan first proposed by the MSS Coalition and reiterated in the IUSG's Comments, may have merit, from a practical perspective, most if not all of the 2 GHz incumbents will eventually have to be

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<sup>4</sup> *Microwave Relocation Cost-Sharing, First Report and Order and Further Notice of Proposed Rule Making* at ¶ 74.

relocated.<sup>5</sup> When the 2 GHz incumbents are ultimately relocated, Boeing believes that the relocation costs must be shared fairly among all MSS operators.

For these reasons, Boeing stated in its Comments that the Commission should adopt a mechanism that fairly apportions among all 2 GHz MSS operators the costs of clearing the incumbents from the band. In order to avoid a competitive inequity, Boeing proposes that each MSS operator bear financial responsibility for the costs of relocating 2 GHz incumbents in proportion to the amount of spectrum in the 1990-2025 MHz band for which it is licensed.

Boeing, therefore, opposes the comments of several MSS operators supporting proposals that would exempt themselves from paying relocation costs on noninterference grounds and shift to the remaining 2 GHz MSS operators the full costs of relocating 2 GHz incumbents. For instance, Celsat America, Inc. (“Celsat”) maintains that it is not necessary for all 2 GHz licensees to pay relocation costs when spectrum sharing is a more spectrally efficient and just alternative. Instead, Celsat argues, the Commission should require only those MSS licensees who cannot share spectrum with BAS and Fixed [microwave] Service (“FS”) licensees to pay relocation costs.<sup>6</sup> Similarly, Constellation Communications, Inc. (“Constellation”) states that a CDMA MSS system should not be required to contribute to the relocation of an existing system if the relocation is necessary to accommodate a TDMA MSS system. Constellation argues that this is true even though both MSS systems might be assigned frequencies that overlap the assigned frequency of the existing system.<sup>7</sup>

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<sup>5</sup> Although a specific channelization band for 2 GHz MSS has not yet been developed, Boeing believes that it is unlikely that MSS channels will align with BAS or FS channels, therefore it will be unavoidable that current 2 GHz BAS and FS channels will overlap with multiple MSS channels. As a result, although a particular MSS operator with an exclusive channel may be able to coexist with the incumbents, it is unlikely that there will not be at least one MSS operator that would be forced to relocate a particular incumbent.

<sup>6</sup> Comments of Celsat America, Inc. (“Celsat Comments”) at 2.

<sup>7</sup> Comments of Constellation Communications, Inc. (“Constellation Comments”) at 2.

Likewise, ICO Services Limited (“ICO”) and IUSG argue that as long as a 2 GHz MSS provider can share with a primary BAS or FS incumbent, there should be no requirement for the MSS provider to pay to relocate the incumbent.<sup>8</sup> ICO and IUSG further argue that a MSS provider should only be required to pay to relocate an incumbent from spectrum actually used by that MSS provider.<sup>9</sup>

By contrast, Globalstar, L.P. (“Globalstar”) notes that MSS operators with exclusive spectrum may need to be treated differently than MSS licensees with shared spectrum. Globalstar states that it may be appropriate for satellite systems with exclusive spectrum that can coexist with terrestrial incumbent stations not to pay relocation costs. Where two or more MSS operators share spectrum, however, Globalstar states that the cumulative effect of the interference from all systems must be considered, and each system should be liable for reimbursement of the relocation costs paid by the other systems sharing the spectrum.<sup>10</sup>

Since Boeing believes that all MSS operators have a responsibility and obligation to pay a fair share of the costs of clearing the 2 GHz band, it strongly supports one of the “core principles” included in the Comments of Iridium LLC (“Iridium”). Iridium proposes that because all MSS operators share the benefits of clearing the band, all licensed operators should be required to contribute to a common fund that will be used to reimburse incumbents’ relocation expenses.<sup>11</sup> Iridium maintains that the amount of money contributed by each MSS licensee should be determined on a pro rata basis keyed to the amount of spectrum made available to each

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<sup>8</sup> Comments of ICO Services Limited (“ICO Comments”) at 4-5; Comments of ICO USA Service Group (“IUSG Comments”) at 21-23, 40-41.

<sup>9</sup> ICO Comments at 4; IUSG Comments at 52-53.

<sup>10</sup> Comments of Globalstar, L.P. (“Globalstar Comments”) at 5-6.

<sup>11</sup> Comments of Iridium LLC (“Iridium Comments”) at 4.



MSS licensee.<sup>12</sup> Iridium states that such an allocation is fair for several reasons: First, the amount of spectrum each MSS licensee has available directly impacts that licensee's overall system capacities, and fairness dictates that those who have access to a greater amount of spectrum, and thus greater capacity, should be required to contribute more. Second, this approach avoids the inequities that would result if each licensee were solely responsible for satisfying the reimbursement obligations associated with relocating the incumbents that occupy its assigned spectrum.<sup>13</sup> Boeing agrees with and strongly supports Iridium's arguments with respect to this issue.

In addition, MSS operators are not locked into the system configurations currently planned. As ICO has stressed, the majority of the potential MSS operators have not yet started to construct their MSS systems; therefore, system configurations are subject to change prior to launch, consistent with any service rules that the Commission adopts. As a result, it would be inefficient and unnecessary to decide now which systems will and which systems will not interfere with incumbent 2 GHz licenses. Moreover, even after a MSS operator launches service, it will be permitted to reconfigure its system subject to the Commission's technical parameters for the service. Therefore, the fact that a MSS system is originally designed to avoid interference with 2 GHz incumbents does not guarantee that the system will not later be modified in a way that could cause interference. At that time, if the incumbents have already been relocated out of the band, it would be impossible to determine if the modified system would have caused interference.<sup>14</sup>

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<sup>12</sup> *Id.* at 3. While Boeing supports the fair sharing among all 2 GHz MSS operators of relocation costs, Boeing opposes any proposal that would require all 2 GHz MSS licensees to fund relocation in advance. *See infra*.

<sup>13</sup> *Id.* at 5.

<sup>14</sup> Unlike the situation in PCS where a detailed interference test was available for comment as part of the rule making that adopted the *Microwave Relocation Cost-Sharing* policies and rules, potential MSS operators do not have the benefit of reviewing and commenting on a specific interference test in this proceeding.

Boeing maintains that to avoid future complex disputes about whether a particular MSS licensee would have interfered with 2 GHz incumbents if the incumbents were still in the band, all MSS operators should contribute towards the costs of relocating 2 GHz incumbents. Boeing also believes that this would give MSS operators the maximum flexibility to modify their systems because they would not have to be concerned with whether a modification of their system would trigger an obligation to pay for relocation.

While Boeing strongly opposes all attempts to exempt any MSS operator from having to pay a proportional share of relocation costs, Boeing would not oppose any proposal that reduces or defers the total relocation costs that the MSS operators as a whole must pay. In fact, Boeing supports any proposal whereby MSS service would be initially launched in the least encumbered part of the 2 GHz spectrum, as long as all 2 GHz MSS operators fairly share relocation costs when relocation is eventually necessary. Boeing believes that if initial 2 GHz MSS operations were restricted to the least encumbered portion of the spectrum fewer terrestrial incumbents would experience interference. This would reduce the number of incumbents needing to be relocated, thereby limiting the disruption to terrestrial operations and reducing the relocation costs that 2 GHz MSS operators must pay.

If the Commission decides that MSS operators will only be responsible for the costs of clearing the actual frequencies to which they are assigned — which Boeing contends it should not, for the reasons stated above — Boeing urges the Commission to require MSS operators that share frequency to share the costs of relocating incumbents out of the band. Such cost sharing is appropriate because the cumulative effect of the MSS operations must be taken into account and it would be unfair to require only the later entering operator(s) to pay for the relocation while at the same time permitting the initial entrants to avoid paying relocation costs. Furthermore,

permitting the initial entrant to avoid paying relocation costs simply because it launched its service first would directly counter the Commission's *Microwave Relocation Cost-Sharing* policies, which require the initial entrant to pay for the competitive benefit of entering the market first. Similarly, Boeing fears that where multiple MSS operators use a single band, it would be difficult to determine which operator is causing the interference. As a result, MSS operators and incumbents would be forced to spend valuable time and money making this determination. Boeing therefore believes that the Commission should avoid creating the possibility of such a situation, and should require each 2 GHz MSS operator to fairly share relocation costs.

**II. Relocation Costs Should be Shared Among All MSS Licensees on the Basis of a Cost Sharing Formula Similar to That Adopted in the *Microwave Relocation Cost-Sharing* Proceeding, Whereby the First Entrant Pays Relocation Expenses and Obtains Reimbursement Rights From Subsequent Entrants.**

Boeing also maintains that relocation costs should be shared among all MSS licensees on the basis of a cost sharing formula similar to that adopted in the *Microwave Relocation Cost-Sharing* proceeding, whereby the first entrant pays relocation expenses and obtains reimbursement rights from subsequent entrants at the time each subsequent entrant commences commercial operation. Boeing acknowledges that any cost sharing formula to be used by MSS licensees must be modified to take into account differences between MSS and Personal Communications Service ("PCS"). Although the *Microwave Relocation Cost-Sharing* formula may need some minor tweaking to account for the differences between PCS and MSS, it provides the best basis for the fair and equitable relocation of 2 GHz incumbents. Boeing, therefore, opposes the IUSG proposal that would require each MSS operator to contribute \$5 million towards a common relocation fund within 60 days of grant of the MSS operator's

license.<sup>15</sup> In addition, Boeing opposes the proposals of Iridium and several of the BAS licensees that would require MSS operators to fund relocation costs in advance of market launch.<sup>16</sup> Boeing believes that such “upfront” payments would only serve to subsidize the initial operations of some licensees at the expense of others. Because ultimately the costs of clearing the entire band should be distributed equitably among all licensees, there is no unfairness in delaying the obligation of licensees to pay relocation costs until they begin operations and have a revenue flow to fund the payments.

Globalstar correctly notes that the *Emerging Technologies* rules do not require a subsequent licensee to pay reimbursement for relocation undertaken by another licensee until the subsequent licensee is ready to commence operation. Boeing made this point in its initial Comments and strongly reiterates its support to apply the *Emerging Technologies* policies, including the *Microwave Relocation Cost-Sharing* formula, to this proceeding. It must be stressed that the Commission properly concluded in its *Emerging Technologies* proceeding that the first new entrant to launch service should be responsible for clearing the spectrum, subject to reimbursement from subsequent entrants, because it gains a competitive advantage from being the first to launch. The same rationale holds true in the MSS context.

Although the costs of clearing the 2 GHz band throughout the United States for MSS operations will be significantly more expensive than the costs incurred by individual PCS licensees to clear discreet territories, these higher costs are inherent in launching a worldwide, satellite-based communications system. Launching such a system simply requires the potential licensees to operate on a much bigger scale than would be required to launch a geographically limited PCS operation. This higher degree of magnitude, however, does not require changing the

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<sup>15</sup> IUSG Comments at 60.

fundamental policy that the first entrant pays and then seeks reimbursement from subsequent entrants.

The Commission's *Microwave Relocation Cost-Sharing* formula allocates the costs of relocating individual microwave links among all incumbent licensees that are benefited by the relocation.<sup>17</sup> Pursuant to the formula, a MSS licensee that paid to relocate an incumbent licensee would be entitled to reimbursement based on a cost-sharing formula.<sup>18</sup> This formula takes into account the amortized cost of the relocation, the total number of licensees benefited, and the relative time of market entry. The premium costs associated with being the first new entrant should not be passed on to subsequent licensees. In addition, pursuant to the *Microwave Relocation Cost-Sharing* proceeding, reimbursement obligations only attach to a MSS licensee when that licensee begins commercial service.<sup>19</sup> Boeing supports the application of these principles to MSS operators.

Boeing disagrees with the IUSG's statements that only subsequent operators will benefit from the spectrum-clearing efforts of another party. As stated above, all MSS operators benefit from the clearing of 2 GHz incumbents; therefore, all MSS operators should pay their fair share of relocation costs. Once an incumbent is relocated, the MSS operator that paid for the relocation should have the right to reimbursement from not only subsequently entering MSS operators, but also MSS operators that entered commercial service prior to the relocation of the incumbent.<sup>20</sup>

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<sup>16</sup> Iridium Comments at 4.

<sup>17</sup> *Microwave Relocation Cost-Sharing, First Report and Order and Further Notice of Proposed Rule Making* at ¶¶ 69-85 and Appendix A.

<sup>18</sup> *Id.* at ¶ 69.

<sup>19</sup> *Id.* at ¶ 73.

<sup>20</sup> Boeing supports the use of one neutral, non-profit clearinghouse to administer the cost of relocation reimbursement program for 2 GHz MSS similar to that used for PCS.

For purposes of applying the formula to any MSS operator that commenced commercial service prior to the relocation, such operators should be treated as commencing service at the same time as the operator that paid for the relocation. In this way, these operators can benefit in the delay of payment of any relocation that occurs subsequent to the launch of their service, but still pay their fair share for the benefit of having the spectrum cleared.

Finally, Boeing strongly opposes any comments in support of requiring subsequently entering MSS operators to pay for relocation prior to the launch of commercial service. Pursuant to the *Microwave Relocation Cost-Sharing* policies, the timing of the payment of relocation costs is a matter of free negotiation between the first new entrant and the incumbent(s). However, the liability for relocation costs accrues to subsequently entering operators at the time commercial service is launched.<sup>21</sup> Requiring all MSS operators to pay for relocation at the same time, regardless of when that time is, directly counters the *Microwave Relocation Cost-Sharing* policies. Such a rule would give the initial MSS entrants the benefit of being first while subsidies from the other operators would pay for that benefit. Therefore, Boeing strongly opposes any proposals that would require subsequently entering MSS operators to pay for relocation prior to the launch of their commercial service.

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<sup>21</sup> From a practical perspective, a MSS operator will be in a better position to raise the necessary capital to pay for the relocation of incumbents once it has constructed a system and is ready to launch commercial service as compared to simply being granted a license.

### **III. The Commission Must Establish a General Framework that Permits MSS Operators to Negotiate the Relocation of 2 GHz Incumbents.**

Boeing disagrees with the IUSG's proposal regarding the allocation among MSS operators of costs of relocation, including how the costs should be shared and when each MSS operator will be responsible for its share of cost. Boeing, however, supports the IUSG's proposals with respect to the general policies for the relocation of 2 GHz incumbents. Specifically, Boeing supports the adoption of a transitional relocation plan that provides for the phased relocation of BAS incumbents based on individual and collective negotiations between the MSS operators and the incumbents.

As noted in the *Memorandum Opinion and Order and Notice*, simultaneous retuning or replacement of BAS equipment will result in substantial upfront costs for MSS licensees. Although, the comments in this proceeding provide very little additional information about the total potential costs of relocating BAS licensees, it is generally accepted that simultaneous retuning/replacement would require a substantial upfront payment. In addition, several BAS licensees have commented that such a simultaneous retuning/replacement is simply not possible because of the lack of equipment availability and disruption to BAS operations. Based on these observations and the fact that an alternative plan has been proposed, Boeing opposes the simultaneous retuning or replacement of all BAS equipment nationwide on a date certain. Instead, the Commission should adopt the phased transitional approach first advocated by the MSS Coalition in its Supplemental Comments filed in response to the *First NPRM* in this proceeding, and reiterated in the IUSG's Comments.<sup>22</sup>

With respect to a transition plan, Boeing advocates that the parties should determine through negotiation whether digital replacement would be provided and whether equipment

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<sup>22</sup> See MSS Coalition Supplemental Comments at 14-16, 22.

would be retuned rather than replaced. MSS operators must have the option of selecting the lowest cost means of relocating incumbents.

In addition, Boeing continues to support the use of depreciated value as a cap to the amount of direct relocation expenses to which 2 GHz incumbents are entitled. As correctly noted by the IUSG, the payment of funds in excess of the book value of equipment results in a financial gain to the incumbents. No incumbent should be permitted to “game” the relocation system to collect such undeserved windfalls.

Boeing also continues to support a ten-year sunset period, from the 1995 release of the initial *NPRM* in this proceeding. A ten-year sunset date strikes a fair balance between the interests of incumbent licensees and the emerging technology licensee.<sup>23</sup> As Boeing stated in its Comments, the rule serves the public interest because it provides certainty to the process and prevents MSS licensees from being required to pay for relocation expenses indefinitely. Furthermore, as noted properly by the Commission, a sunset date is important because it provides a 2 GHz FS incumbent with an incentive to relocate when it changes or replaces equipment.<sup>24</sup> Finally, incumbent licensees have had sufficient time to plan for relocation since the Commission announced in 1992 its intention to reallocate the 2 GHz spectrum.<sup>25</sup>

For all of the above reasons, Boeing strongly recommends that the Commission adopt rules and policies consistent with its Comments and Reply Comments provided in this proceeding, including: application of the *Microwave Relocation Cost-Sharing* policies to the relocation of 2 GHz incumbents; apportionment among MSS operators of relocation costs on the basis of a cost sharing formula similar to that adapted in the *Microwave Relocation Cost-Sharing*

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<sup>23</sup> *Microwave Relocation Cost-Sharing, First Report and Order and Further Notice of Proposed Rule Making* at ¶¶ 60-68.

<sup>24</sup> *Id.* at ¶ 67.



proceeding; and the retuning or relocation of 2 GHz incumbents pursuant to a phased transitional approach negotiated between MSS and BAS communities.

Respectfully submitted,

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March 5, 1999

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<sup>25</sup> *Id.* at ¶ 66.

## Certificate of Service

I, Anne H. Rutheford, of the law firm of Squire, Sanders & Dempsey, L.L.P. hereby certify that a copy of the foregoing was served this 5<sup>th</sup> day of march, 1999 via first class mail, postage prepaid, upon the following:

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